

valve is expressly adapted to the production of an effect of this kind, in various degrees, corresponding with the respective characters and habits of each tribe. He is thus led to conclude that the function which the tricuspid valve exercises exhibits, in the extent of its development, a regular gradation, when followed throughout the different orders of Mammalia and Birds; and that it extends even to some Reptiles.

The force with which the circulating blood is impelled by the general venous trunks into the heart, and which is dependent on the action of the arterial system, the degree of compression arising from muscular action, combined with the resistance of the valves of the veins, and is also influenced by occasional accumulations of blood from rapid absorption, from impeded respiration, and from cold applied to the surface of the body, is shown to be subject to great and sudden variations. Any increase taking place in this force tends to produce distension of the right ventricle of the heart, followed by disturbance in the valvular action of the tricuspid membrane, owing to the displacement of its parts, which thus allows of a considerable reflux of blood into the auricle. Among the Mammalia, the lowest degree of this action, corresponding to that of a safety-valve, is found in the rodent, the marsupial, and the canine tribes. The next in degree is that which occurs in the order of Edentata and the feline genus. The *Quadrumana* occupy the next place in the scale of gradation. The human conformation exhibits this function in a very conspicuous manner, especially in the adult period; for at birth, when the right ventricle is unyielding, it scarcely exists; and in various states of disease the tricuspid valve acts with too much or with too little efficacy. The *Pachydermata* and *Ruminantia* come next in succession. The Seal exhibits this peculiarity in a still higher degree; but in no order of Mammalia does it exist to so great an extent as in the *Cetacea*, which appear, indeed, to possess a peculiar additional provision for effectually securing the permanent performance of this office, which the author compares to that of a safety-valve. A similar function, subject to similar gradations, is likewise traced in different orders of Birds. It is but slight in the *Gallinacæ*; and rather greater in the *predaceous* tribes. In some of the *Waders* it exists to a considerable extent; but is greatest of all in the orders of *Passerinæ* and *Scansores*. *Crocodiles* and the *Ornithorhynchus* present some traces of this peculiar provision relatively to the circulation.

“Some Account of the appearances of the Solar Spots, as seen from Hereford, on the 15th and 16th of May, 1836, during and after the Solar Eclipse.” By Henry Lawson, Esq., in a Letter to Sir Henry Ellis, K.G.H., F.R.S., by whom it was communicated to the Society.

The spots on the sun's disc, at the period referred to, were very numerous; and one of great size, being many thousand miles in diameter, in particular attracted attention, from its penumbra presenting an appearance similar to a sky filled with small flocculent white clouds, perfectly distinct from one another; while on two sides were seen

large masses of darker clouds, which seemed as if pouring their substance into the central chasm. The figure of the solar spots did not undergo any perceptible change of form during the progressive passage of the edge of the moon over them.

“On the Brain of the Negro, compared with that of the European and the Ourang-Outang.” By Frederick Tiedemann, M.D., Professor of Anatomy and Physiology in the University of Heidelberg, and Foreign Member of the Royal Society.

It has long been the prevailing opinion among naturalists that the Negro race is inferior, both in organization and in intellectual powers, to the European; and that, in all the points of difference, it exhibits an approach to the Monkey tribes. The object of the present paper is to institute a rigid inquiry into the validity of this opinion. The author has, for this purpose, examined an immense number of brains of persons of different sexes, of various ages, and belonging to different varieties of the human race, both by ascertaining their exact weight, and also by accurate measurement of the capacity of the cavity of the cranium; and has arrived at the following conclusions. The weight of the brain of an adult male European varies from 3lbs. 3oz. to 4lbs. 11 oz. troy weight: that of the female weighs, on an average, from 4 to 8 oz. less than that of the male. The brain usually attains its full dimensions at the age of seven or eight; and decreases in size in old age. At the time of birth, the brain bears a larger proportion to the size of the body than at any subsequent period of life, being then as one sixth of the total weight; at two years of age it is one fourteenth; at three, one eighteenth; at fifteen, one twenty-fourth; and in the adult period, that is, from the age of twenty to that of seventy, it is generally within the limits of one thirty-fifth and one forty-fifth. In the case of adults, however, this proportion is much regulated by the condition of the body as to corpulence; being in thin persons from one twenty-second to one twenty-seventh, and in fat persons often only one fiftieth, or even one hundredth of the total weight of the body. The brain has been found to be particularly large in some individuals possessed of extraordinary mental capacity. No perceptible difference exists either in the average weight or the average size of the brain of the Negro and of the European: and the nerves are not larger, relatively to the size of the brain, in the former than in the latter. In the external form of the brain of the Negro a very slight difference only can be traced from that of the European; but there is absolutely no difference whatsoever in its internal structure, nor does the Negro brain exhibit any greater resemblance to that of the ourang-outang than the brain of the European, excepting, perhaps, in the more symmetrical disposition of its convolutions.

Many of the results which the author has thus deduced from his researches are at variance with the received opinions relative to the presumed inferiority of the Negro structure, both in the conformation and relative dimensions of the brain; and he ascribes the erroneous notions which have been hitherto entertained on these subjects chiefly to prejudice created by the circumstance that the facial angle